TYPE APPROVAL CERTIFICATE

Certificate No:
TAF00000EM
Revision No:
2

This is to certify:

That the Class A Bulkhead

with type designation(s)
A-60 Steel Bulkhead - FireMaster Marine Plus Blanket 60 mm x 80 kg/m3

Issued to
Thermal Ceramics UK Ltd
Wirral, Merseyside, **United Kingdom**

is found to comply with
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021
DNV rules for classification – Ships
DNV offshore standards

Application :

Approved for use as fire retarding division of class A-60.

This certificate is recognized by Transport Canada

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2022-07-01**

This Certificate is valid until **2027-06-30**.
DNV local station: **UK & Ireland CMC & VMC**

Approval Engineer: **Helge Bjørnarå**

for **DNV**
Digitally Signed By: Edvardsen, Marte Eknæs
Location: DNV Høvik, Norway
on behalf of

Helene David-Andersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Product description

A-60 Steel Bulkhead - FireMaster Marine Plus Blanket 60 mm x 80 kg/m^3,
composed of a structural steel bulkhead insulated with a single layer of 60 to 65 mm thick FireMaster Marine Plus Blanket (manufactured by Thermal Ceramics with density 80 kg/m^3) applied across the stiffeners. The stiffeners are also to be packed with the same blanket.

The 60 to 65 mm insulation layer over the stiffeners may be compressed to no less than 25 mm.

The blankets are held in place using copper coated mild steel pins (Ø 3 mm / typically between 80 to 90 mm long) welded to the bulkhead and 38 mm friction-fit washers. The pins are to be installed with a maximum spacing of 350 mm. At the joints the blankets should be compressed. Joints between blankets can be placed a maximum of 350 mm from an anchor pin across the blanket width and a maximum of 250 mm from an anchor pin where lengths of blanket are joined together.

The installation is to be performed according to the manufacturers Fire Protection Systems Information, reference No. FM MS 01 PW and No. FM 4.101.

The products may be manufactured at the premises of:
- Morgan Kailong (Jingmen) Thermal Ceramics Co., Ltd., Jingmen, China.
- Morgan Thermal Ceramics (Shanghai) Co., Ltd., Shanghai, China
- Thermal Ceramics de France S.A., Saint-Marcellin-en-Forez, France.
- Murugappa Morgan Thermal Ceramics Ltd, Ranipet, India.
- Morgan Thermal Ceramics Korea, Daegu, Korea.
- Grupo Industrial Morgan SA de CV, Mineral de La Reforma, Mexico.
- Morgan Advanced Materials Industries Ltd, Abudhabi, United Arab Emirates.
- Thermal Ceramics, Inc., Augusta, USA.

Application/Limitation

Approved for use as a vertical fire retarding division of class A-60.

General application: Fire hazard from either side

Any surface materials used have to be approved for smoke and toxicity and low flame-spread characteristics (IMO 2010 FTP Code Annex 1 Parts 2 and 5) when required according to relevant rules.

Each product is to be supplied with its manual for installation and maintenance.

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No. KOMERI-0402-15T4084 dated 1 July 2016 from KOMERI, Busan, Korea.
Test report No. FT12072 dated 5 April 2012 from Far East Fire Testing Centre, Shanghai, China.
Test report No. 227561 dated 16 June 2008 from BRE Testing, Garston, UK.

Thermal Ceramics Fire Protection Systems Information, reference No. FM MS 01 PW, Rev.9 and No. FM 4.101, Rev.9.

Tests carried out

Tested according to IMO FTP Code Part 3 and in compliance with IMO 2010 FTP Code Ch.8 and according to IMO 2010 FTP Code Part 3.

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire technical rating.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNV-CP-0338, Section 4.